



University  
of Basel

Department of  
Biomedical Engineering



Seminar Series:

## Latest Breakthroughs in Biomedical Engineering Research

Location: DBE Science Lounge, Hegenheimermattweg 167C, 4123 Allschwil

Date & Time: Thursday 21.05.2026 | 16:30 – 17:30

Host: Prof. Viktor Kölzer & Sonali Andani

# AI Foundation Modeling for Oncologic Pathology

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## Abstract

Pathology practice and biological research generate large volumes of multimodal data, ranging from tissue sections stained with various markers to DNA assays and, recently, spatial transcriptomics. Yet, H&E-stained tissue remains the gold standard for studying many diseases, including cancer. This underscores the importance of developing general-purpose AI models for histology to advance precision medicine, patient stratification, and prognostication, among others. In this talk, I will explore two key questions: How can we develop universal, agentic, and actionable models for histology?, and How can we effectively leverage these models for diagnosis and prognosis, and biomarker discovery? I will be discussing these points from the perspective of studies published during my postdoctoral time at Harvard Medical School, with projects such as UNI (Nature Medicine), Threads (Nature Cancer), SlideSeek Tangle (CVPR), Madeleine (ECCV), and HEST (NeurIPS) as well as from the point of view of drug-induced toxicity, with studies such as TRACE and GEESE.

## Biosketch

Guillaume is a tenure-track assistant professor in the Department of Oncology at The University of Lausanne (UNIL). He completed a postdoctoral fellowship at Harvard Medical School and Brigham & Women's Hospital in the group of Prof. Faisal Mahmood. He obtained his Ph.D. in Electrical and Electronic Engineering from EPFL in collaboration with IBM Research and ETH Zurich in 2022. Guillaume's research focuses on AI for pathology and oncology, with the goal of integrating AI tools into both the clinical and research facets of pathology. His research involves two main objectives: first, enhancing the representation learning of tissue by developing general-purpose foundation models for pathology and oncology; and second, integrating AI tools in drug development to improve drug safety assessment, detect toxicity, and discover safety biomarkers.